



DES
**DEPARTMENT OF ENVIRONMENT
AND SUSTAINABILITY**



air quality



desert conservation
PROGRAM



sustainability

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MINOR SOURCE TECHNICAL SUPPORT DOCUMENT

SOURCE NAME:
Flexaust Incorporated

SOURCE ID:
18086

SOURCE LOCATION:
3732 North Las Vegas Boulevard, Suite 110
Las Vegas, Nevada 89115

COMPANY NAME:
The Flexaust Company

APPLICATION PREPARED BY:
The Flexaust Company

CURRENT ACTION:
New AQR 12.1

APPLICATION RECEIVED:
January 20, 2021

TSD Date: June 17, 2021

ACRONYMS AND ABBREVIATIONS

(These terms may be seen in the technical support document)

AQR	Clark County Air Quality Regulation
CE	control efficiency
CF	control factor
CFR	Code of Federal Regulations
CO	carbon monoxide
DAQ	Division of Air Quality
EF	emission factor
EPA	U.S. Environmental Protection Agency
EU	emission unit
HAP	hazardous air pollutant
H ₂ S	hydrogen sulfide
NAICS	North American Industry Classification System
NO _x	nitrogen oxide
Pb	lead
PM _{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RACT	reasonably available control technology
RICE	reciprocating internal combustion engine
SCC	Source Classification Codes
SIC	Standard Industrial Classification
SO ₂	sulfur dioxide
TSD	Technical Support Document
VOC	volatile organic compound

Technical Support Document

This TSD establishes the methodology related to the terms and conditions of its Minor Source Permit, issued pursuant to Clark County Department of Air Quality Regulations (AQR) Section 12.1. The TSD shall not serve as the operating authority.

Source Description

Flexaust Incorporated is a plastic extrusion facility, located in the Hydrographic Area of 212 – Las Vegas Valley. The new facility will manufacture flexible duct hoses. Processes include extrusion of plastic materials, tape wrap of rubber coated materials, and spiral wrap of plastic materials. Scrap will also be recycled. As a plastic extrusion facility, the source is classified under SIC 3052: Rubber and Plastics Hose and Belting and NAICS 326220: Rubber and Plastics Hoses and Belting Manufacturing.

Flexaust Incorporated is a minor source of all regulated air pollutants, enforced by the Clark County Division of Air Quality. In addition, the source will not be subject to any New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Air Pollutants (NESHAP).

Permitting Action

The permitting action for this source is a new AQR 12.1 minor source permit.

Emission Units

Table 1 is a comprehensive list of the emission units at this stationary source. The production process includes the extrusion of plastic material, tape wrap (via adhesive) of rubber coated material, and spiral wrap (via glue) of plastic material. After the production process, the leftover scraps are then recycled into granulated material.

Table 1. List of Emission Units

EU	Rating	Description	Make	MN	SN	SCC
	lb/hr					
A01	200	Extruder X1	Berlyn	2.5 Dynamite II	129F203	30101809
A02	200	Extruder X2	Berlyn	UNEX 4.1	2248784	30101809
A03	200	Extruder X3	Flexplas	Extruder	6525PE012016	30101809
A04	200	Extruder X4	Flexplas	Extruder	6525PE022016	30101809
A05	100	Extruder X5	n/a	n/a	01239CMMS	30101809
A06	200	Extruder X6	US Extruders	US 250 / 24	20012603	30101809
A07	50	Extruder XS1	Berlyn	1.25 EXT	11.2524:1	30101809
A08	50	Extruder XS2	Berlyn	1.25 EXT	11.2524:1	30101809
A09	30	Extruder XW1	US Extruders	US 150 / 24	20012605	30101809
A10	50	Extruder CX1	US Extruders	US 150 / 24	20012605	30101809
B01	900	Genesis Grinder	Hosokawa	1624 SPL	1624SPL542499	30102705
B02	190	Flexadux Grinder	Conair	813	202005104331	30101899
B03	190	Flexadux Grinder	Conair	813	202005104332	30101899
B04	190	Flexadux Grinder	Conair	813	202009104584	30101899
C01		Adhesives				30101899

Calculation of Emissions

Applicability

The emissions for permit applicability were calculated by operating the plastic extrusion facility at 8,760 hours per year (worst-case scenario) and applying various derived emission factors.

The derived emission factors were retrieved from a similar plastic extrusion facility (Primex Plastics) and represent a more consistent and accurate means of calculating the emissions for permit applicability. The derived emission factors also explain why there is a discrepancy between the emissions that are calculated in this technical support document and the emissions that were submitted in the application (January 20, 2021).

With these conditions in place, Flexaust Incorporated emits 23.54 tons per year of VOC. This value is above the respective threshold for permit applicability (see Table 3), which means Flexaust Incorporated is required have an air quality permit for the operation of their plastic extrusion facility.

Table 3. AQR 12.1.1(d) Applicability Emissions Evaluation (tons per year)

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	H ₂ S	Pb
Applicability Thresholds	5	5	5	25	25	5	1	0.3
Applicability Emissions Total	0.48	0.48	0	0.50	0	23.54	0	0

Status Determination Emissions

The emissions for source status were calculated by operating the plastic extrusion facility at 8,760 hours per year (worst-case scenario) and applying various derived emission factors.

The derived emission factors were retrieved from a similar plastic extrusion facility (Primex Plastics) and represent a more consistent and accurate means of calculating the emissions for source status. The derived emission factors also explain why there is a discrepancy between the emissions that are calculated in this technical support document and the emissions that were submitted in the application (January 20, 2021).

With these conditions in place, the source emits 0.48 tons per year of PM₁₀, 0.48 tons per year of PM_{2.5}, 0.50 tons per year of CO, and 23.54 tons per year of VOC. All of these values are below each respective threshold for major source status (see Table 4), which means Flexaust Incorporated will be classified as a true minor source for all regulated air pollutants, enforced by the Clark County Division of Air Quality.

Table 4. Status Determination Emissions (tons per year)

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP ¹
Major Source Thresholds	100	100	100	100	100	100	10/25
Nonattainment NSR	100	100	100	100	100	100	none
PSD Thresholds	250	250	250	250	250	250	none
SDE	0.48	0.48	0	0.50	0	23.54	8.61

¹10 tons for any single HAP or 25 tons for any combination of HAP pollutants.

HAP emissions are also evaluated during the calculation of source status emissions because it is considered a regulated air pollutant. However, the Division of Air Quality (DAQ) has determined that the calculated and/or estimated HAP emissions from this source fall below the AQR 12.1 permitting threshold. Therefore, a specific PTE will not be included in the permit, but any applicable NESHAP and/or MACT requirements will be included in the air quality permit.

PTE

The source PTE (see Table 5) was calculated by operating the plastic extrusion facility at 8,760 operating hours per year (worst-case scenario) and applying various emission factors to the plastic extrusion facility. This includes the controlled emission factor for the Genesis grinder (EU: B01), equipped with an add-on cyclone.

In addition, there is a retention rate in the emissions of PM₁₀, PM_{2.5}, CO, and VOC, after the general operation of the equipment. The retention rate is 50 percent, which means there is an emission rate of about 50 percent as well. This retention rate results in lower values in the source PTE of PM₁₀, PM_{2.5}, CO, and VOC.

Table 5: Source PTE

PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC
0.14	0.14	0	0.25	0	23.54

Emission Increase

Flexaust Incorporated has an emission increase of 23.54 tons per year of VOC. This value is above the respective threshold for significance (see Table 6), which means the source is required to submit a RACT analysis for this permitting action.

Table 6. Emissions Increase Calculation and Significance Evaluation (tons per year)

Affected EU	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	H ₂ S	Pb
Proposed PTE	0.14	0.14	0	0.25	0	23.54	0	0
Permitted PTE	0	0	0	0	0	0	0	0
Δ Emissions	0.14	0.14	0	0.25	0	23.54	0	0
Significance Threshold	7.5	7.5	20	35	40	20	5	0.6
RACT Analysis Required	No	No	No	No	No	Yes	NA	NA

Control Technology

The Genesis grinder (EU: B01) is equipped with an add-on cyclone, controlling particulates while the emission unit is in operation. In addition, the source will practice good housekeeping practices during the application and storage of VOC-containing adhesives to satisfy the requirements of RACT.

The source will operate the extruders (EU: A01-A10) between the range of 200° F and 600° F. The temperature range was provided by the permittee.

Operational Limits

Flexaust Incorporated is allowed to operate at maximum capacity, with the throughputs provided below in Table 7.

Table 7. Operational Limits

EU	Description	Annual Throughput
A01-A10	Extruders	5,607 tons
B01	Grinder	3,942 tons
B02-B04	Grinders	2,497 tons
C01	Adhesive – D1085LT	13,140 gallons
C01	Adhesive – D1779	986 gallons

Review of Applicable Regulations

The source is not subject to any New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Air Pollutants (NESHAP).

Monitoring

Standard monitoring requirements for opacity and an add-on cyclone will be included in the air quality permit.

For the extruders (EU: A01-A10), the source monitor the temperature range while the emission units are in operation.

In addition, Flexaust Incorporated will monitor the throughput of the extruders, grinders, and adhesives, each month of operation.

Performance Testing

No performance testing requirements have been identified.

Increment Analysis

Flexaust Incorporated does not emit NO_x and/or SO₂. As a result, the source does not trigger an increment analysis in the Hydrographic Area of 212 – Las Vegas Valley.

Public Participation

This permitting action will be subject to public notice, pursuant to AQR 12.1.5.3(a)(1)(B) – a new minor source that will be located within 1,000 feet of the outer boundary of a residential area.

Attachments

Attachment 1. Emissions for Permit Applicability and Source Status – PM₁₀ and PM_{2.5}

EU	Max Rating	Description	Throughput	Uncontrolled EF	PTE
	lb/hr		tons/yr	lbs/ton	tons/yr
A01 – A10	1,280	Extruders	5,607	0.0532	0.15
B01	900	Genesis Grinder	3,942	0.1040	0.20
B02 – B04	570	Flexadux Grinders	2,497	0.1040	0.13
PM ₁₀ / PM _{2.5} Total					0.48

Attachment 2. Emissions for Permit Applicability and Source Status – CO and VOC

EU	Description	Throughput	Pollutant	Uncontrolled EF	PTE
		tons/yr		lb / 1 million lb	tons/yr
A01 – A10	Extruders	5,607	CO	90 lb / 1 million lb	0.50
			VOC	190 lb / 1 million lb	1.07
C01	Adhesive D1085LT	13,140 gallons	VOC	3.17 lb/gallon	20.83
C01	Adhesive D1779	986 gallons	VOC	3.32 lb/gallon	1.64

Attachment 3. Emissions for Permit Applicability and Source Status – Summary (tons per year)

EU	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
A01 – A10	0.15	0.15	0	0.50	0	1.07	0
B01	0.20	0.20	0	0	0	0	0
B02 – B04	0.13	0.13	0	0	0	0	0
C01	0	0	0	0	0	20.83	8.60
C01	0	0	0	0	0	1.64	0.01
Total	0.48	0.48	0	0.50	0	23.54	8.61

Attachment 4. Source PTE – PM₁₀ and PM_{2.5}

EU	Max Rating	Description	Throughput	Uncontrolled EF	CF	PTE
	lb/hr		tons/yr	lbs/ton		tons/yr
A01 – A10	1,280	Extruders	5,607	0.0532	0.50	0.07
B01	900	Genesis Grinder	3,942	0.1040	0.045	0.01
B02 – B04	570	Flexadux Grinders	2,497	0.1040	0.50	0.06
PM ₁₀ / PM _{2.5} Total						0.14

Attachment 5. Source PTE – CO and VOC

EU	Description	Throughput	Pollutant	Uncontrolled EF	CF	PTE
		tons/yr		lb / 1 million lb		tons/yr
A01 – A10	Extruders	5,607	CO	90 lb / 1 million lb	0.50	0.25
			VOC	190 lb / 1 million lb	0.50	0.53
C01	Adhesive D1085LT	13,140 gallons	VOC	3.17 lb/gallon	1	20.83
C01	Adhesive D1779	986 gallons	VOC	3.32 lb/gallon	1	1.64

Attachment 6. Source PTE – Summary (tons per year)

EU	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
A01 – A10	0.07	0.07	0	0.25	0	0.53	0
B01	0.01	0.01	0	0	0	0	0
B02 – B04	0.06	0.06	0	0	0	0	0
C01	0	0	0	0	0	20.83	8.60
C01	0	0	0	0	0	1.64	0.01
Total	0.14	0.14	0	0.25	0	23.54	8.61

Attachment 7. Calculation of HAP Emissions from Toluene (from adhesive use of D1085LT)

Adhesive (D1085LT) Weight = 6.95 pounds per gallon

Toluene (HAP) Content = 18.83%

Usage Rate = 1.5 gallons per hour

Annual Throughput = (1.5 gallons per hour)*(8,760 hours per year) = 13,140 gallons per year

(13,140 gallons per year)*(6.95 pounds per gallon)*(0.1883) = 8.60 tons per year of HAP

Attachment 8. Emission Factors

EU	Description	Pollutant	Uncontrolled EF	CF
A01-A10	Extruders	PM ₁₀ and PM _{2.5}	0.0532	0.50
		CO	90 lb / 1 million lb	0.50
		VOC	190 lb / 1 million lb	0.50
B01	Genesis Grinder	PM ₁₀ and PM _{2.5}	0.1040 lb/ton	0.045
B02 – B04	Flexadux Grinders	PM ₁₀ and PM _{2.5}	0.1040 lb/ton	0.50

Emission Factor of PM₁₀ and PM_{2.5} – Extruders

The emission factor for PM₁₀ and PM_{2.5} is derived from page 578 – “Development of EF for PE Processing.” (0.0532 lb/ton) is an uncontrolled emission factor that is applied to the extruders and when operation is taken into account, there is a control efficiency of 50 percent and a control factor of 0.50.

Emission Factor of PM₁₀ and PM_{2.5} – Grinders

The emission factor for PM₁₀ and PM_{2.5} is based on a similar source – Primex Plastics (Source 598). (0.104 lb/ton) is an uncontrolled emission factor that is applied to the Genesis grinder and when the add-on cyclone is taken into account (EU: B01), there is a control efficiency of 95.5 percent and a control factor of 0.045.

For (EU: B02-B04), there are no cyclones present and as a result, only the uncontrolled emission factor (0.104 lb/ton) is applied to the Flexadux grinders. After operation, there will be a control efficiency of 50 percent and a control factor of 0.50.

Emission Factor of CO – Extruders

The emission factor for CO is based on a similar source – Primex Plastics (Source 598). (90 pounds per 1 million pounds) is a worst case (uncontrolled) emission factor (CO) and after operation, there is a control efficiency of 50 percent and a control factor of 0.50.

Emission Factor of VOC – Extruders

The emission factor for VOC was derived from “Sampling and Analysis of Volatile Organic Compounds Evolved During Thermal Processing of Acrylonitrile Butadiene Styrene Composite Resins.” This article was published in September 1995 in the Journal of Air and Waste Management Association.

(190 pounds per 1 million pounds) is a worst case (uncontrolled) emission factor (VOC) and after operation, there is a control efficiency of 50 percent and a control factor of 0.50.